



# DIOCESAN SCHOOL FOR GIRLS

## Yr.12 TECHNOLOGY (FOOD)

### 2012

All Technology (food) courses are developed around the three learning strands of technology in the *New Zealand Technology Curriculum (2007)*: Technological Knowledge and Understanding, Technological Practice; and Nature of Technology.

**Prerequisites:** Students need to have an interest in food and nutrition. A satisfactory attitude and level of progress in a Year 11 Technology option is needed.

The Year 12 Food Technology programme in 2012 will include study of two major units of work. You will **not** sit an exam at the end of the year; the evidence from these units will be assessed against a number of Achievement Standards both internally and externally. You are likely to gain **18 credits** in total but have the option to gain more if you choose to.

**Café Foods:**

- Term 1-2

**Convenient Foods:**

- Term 2-3-4

**Outline of Course**

Students will:

- Develop a brief to address an issue
- Demonstrate use of planning tools
- Develop a conceptual design for an outcome
- Demonstrate understanding of how technological modelling supports risk management

**Course Duration:**

- Food Technology is a whole year practical based course.
- Each Food Technology class has up to 6 lessons x 50/55 minutes per 7 day timetable.

**Achievement/Learning Objectives:**

*Links to AO's and LOs in technology at Level 7*

## **Technological Practice**

### **Planning for practice**

Students will:

Critically analyse their own and others' past and current planning and management practices in order to develop and employ project management practices that will ensure the effective development of an outcome to completion.

### ***Brief development***

Students will:

Justify the nature of an intended outcome in relation to the issue to be resolved and justify specifications in terms of key stakeholder feedback and wider community considerations.

### ***Outcome development and evaluation***

Students will:

Critically analyse their own and others' outcomes and evaluative practices to inform the development of ideas for feasible outcomes. Undertake a critical evaluation that is informed by ongoing experimentation and functional modelling, stakeholder feedback, and trialling in the physical and social environments. Use the information gained to select, justify, and develop an outcome. Evaluate this outcome's fitness for purpose against the brief. Justify the evaluation using feedback from stakeholders and demonstrating a critical understanding of the issue.

## **Technological Knowledge**

### ***Technological modelling***

Students will:

Understand how the "should" and "could" decisions in technological modelling rely on an understanding of how evidence can change in value across contexts and how different tools are used to ascertain and mitigate risk.

## **Nature of Technology**

### ***Characteristics of technology***

Understand the implications of ongoing contestation and competing priorities for complex and innovative decision making in technological outcomes

### **Topic One:**

#### **"Café Foods"**

Especially popular with young people, stopping by a New Zealand cafe has almost become a culture in New Zealand. Cafes are

### **Topic Two:**

#### **"Convenient Foods"**

Budget, work, leisure time activities, food knowledge and cooking skills all influence the food we eat. Changes in technological

<p>common places to catch up with friends, meet business associates, relax, or to just pop in for your quick coffee.</p> <p>Most New Zealand cafes serve a wide variety of drinks and light snacks. Drinks may include: coffee, tea, herbal teas, hot chocolates, juice. Food tends to be light, quick and easy such as tapas, paninis, muffins and salads. It's pretty much the norm for New Zealand cafes to cater to special dietary requirements, providing vegetarian, vegan, and celiac friendly food.</p> <p>(Students may choose any of the above as their context choice)</p>	<p>advances influence the availability of food products such as processed foods. Many families choose to buy takeaways such as fried, BBQ chickens, fish and chips and burgers. Pre-prepared food such as frozen pies, chips and cake mixes is also bought from supermarkets. Many takeaway meals and pre-prepared foods, including snack foods, can be very high in fat, salt and sugar providing little nutrition to the body.</p> <p>New product development is driven by: an interest in global foods, health and wellness, lifestyle, indulgence and organics.</p>
<p><b>For technological practice based standards such as these, at Level 2 students must be given the opportunity to identify their own authentic issue.</b></p>	
<p><b>Assessment Standards</b></p> <p>Internal (4 credits) Standard 2.1 AS91354 Undertake brief development to address an issue</p> <p>Internal (4 credits) Standard 2.2 AS91355 Select and use planning tools to manage the development of an outcome</p>	<p><b>Assessment Standards</b></p> <p>Internal (6 credits) Standard 2.3 AS91356 Develop a conceptual design for an outcome</p> <p>External (4 credits) evidence for this standard will be gathered from written report based on your whole year's work. Standard 2.5 AS91358 Demonstrate understanding of how technological modelling supports risk management</p>
<p><b>Indicators</b></p> <p><b>Learning outcomes- Students will:</b> Select and use <b>planning tools</b> to efficiently manage the development of an outcome by</p> <ul style="list-style-type: none"> <li>critically analysing existing planning tools and project management practices to inform the selection of planning tools appropriate for the Technological Practice to be undertaken, and for recording evidence to support any revisions to</li> </ul>	<p><b>Learning outcomes- Students will:</b> Develop a justified <b>conceptual design</b> for an outcome and</p> <ul style="list-style-type: none"> <li>generate design ideas that are informed by research and critical analysis of existing outcomes</li> <li>develop design ideas for outcomes that are justified as feasible with evidence gained through functional</li> </ul>

<p>planning</p> <ul style="list-style-type: none"> <li>• use planning tools to set achievable goals, manage all resources, plan critical review points, and revise goal and resources as necessary to ensure the effective completion of an outcome</li> <li>• use planning tools to provide evidence for any revisions made at critical review points and justifies the appropriateness of planning tools used.</li> </ul> <p>Undertake comprehensive <b>brief development</b> to address an issue.</p> <p>explore the context to select an issue</p> <p>identify a need or opportunity relevant to their selected issue.</p> <p>establish a conceptual statement that justifies the nature of the outcome and why such an outcome should be developed with reference to the issue it is addressing</p> <p>establish the specifications for an outcome using stakeholder feedback, and based on the nature of the outcome required to address the need or opportunity, consideration of the environment in which the outcome will be situated, and resources available</p> <p>communicate specifications that allow an outcome to be evaluated as fit for purpose</p> <p>justify the specifications in terms of stakeholder feedback, and the nature of the outcome required to address the need or opportunity, consideration of the environment in which the outcome will be situated, and resources available.</p>	<p>modelling</p> <ul style="list-style-type: none"> <li>• critically analyse evaluative practices used when functional modelling to inform own functional modelling</li> <li>• undertake functional modelling to evaluate design ideas and develop and test a conceptual design to provide evidence of the proposed outcome's ability to be fit for purpose</li> <li>• evaluate suitability of materials/components, based on their performance properties, to select those appropriate for use in the production of a feasible outcome</li> <li>• undertake prototyping to gain specific evidence of an outcomes fitness for purpose and use this to justify any decisions to refine, modify and/or accept the outcome as final</li> <li>• use stakeholder feedback and an understanding of the physical and social requirements of where the outcome will be situated to support and justify key design decisions and evaluations of fitness for purpose.</li> </ul> <p>Demonstrate comprehensive understanding of how <b>technological modelling</b> supports decision-making involving:</p> <ul style="list-style-type: none"> <li>• discuss examples to illustrate why the status of evidence gained from technological modelling might change across contexts</li> <li>• explain why different people accept different types of evidence as valid and how this impacts on</li> </ul>
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	<p>technological modelling</p> <ul style="list-style-type: none"> <li>• explain the role of technological modelling in ascertaining and mitigating risk</li> <li>• describe examples to illustrate the strengths and weaknesses of technological modelling for risk mitigation.</li> </ul>
<p><b>Learning activities</b>  <b>Learning Activities overview:</b></p> <p><b>Brief Development Activities:</b></p> <p><b>Research Activities:</b></p> <ul style="list-style-type: none"> <li>• exploring the venue in which the issue exists (for example, the runway, the theatre and/or your identified occasion/location) and how the environment may impact on the physical and functional attributes of your garment</li> <li>• identifying and interviewing all those involved</li> <li>• identifying any initial constraints that you may have to consider such as budget, available equipment, and so on.</li> </ul> <p><b>Idea generation</b></p> <ul style="list-style-type: none"> <li>• Generate some design ideas (whole or part) and annotate.</li> <li>• Discuss these ideas with your stakeholders and gain feedback.</li> <li>• Evaluate these ideas in terms of addressing the issue.</li> <li>• Undertake functional modelling to trial and test the feasibility of your ideas.</li> <li>• Reflect on your progress to date, including stakeholder feedback on the potential of your design ideas to solve your identified issue.</li> <li>• Conduct further research if necessary.</li> <li>• Update your chart as decisions may have</li> </ul>	<p><b>Learning activities</b>  <b>Learning Activities overview:</b></p> <p><b>Develop a conceptual design for an outcome</b></p> <p><b>Activities:</b></p> <p>The brief is developed by the student and approved by the teacher. Students could perhaps use the brief developed for Assessment Resource 91354</p> <ul style="list-style-type: none"> <li>• Read and understand all the details of the brief that has been approved by your teacher.</li> <li>• Generate and evaluate design ideas that could contribute to your conceptual design by: <ul style="list-style-type: none"> <li>– exploring, researching, and critically analysing existing products</li> <li>– gathering evidence about possible locations for your product</li> <li>– discussing the potential of each idea with stakeholders and evaluating its suitability in terms of the project brief</li> <li>– continuing to explore and evaluate design ideas to determine their suitability for inclusion in your final conceptual design.</li> </ul> </li> <li>• Test, refine, and evaluate your conceptual designs using functional modelling, ongoing research, and</li> </ul>

been made that now confirm or discount your considerations.

### **Further development**

- Research possible materials that could be used and their performance properties in relation to the emerging physical and functional nature of your outcome.
- Analyse and justify your findings including the opinions of your stakeholders.
- Further develop your designs through functional modelling to test and trial.
- Consider the physical and social environment, the stakeholders, and the physical and functional nature of your outcome and explain your decisions.

### **Planning for Practice**

#### **1. Select suitable planning tools**

- Analyse existing planning tools. These may include but are not limited to those used by you and others, such as students, managers, industry mentors, and practising technologists.
- Select appropriate planning tools that will help you:
  - set, review, revise and/or confirm achievable goals
  - determine and manage critical review points
  - establish and manage resources to develop your food item
- Explain how these particular planning tools will help you manage the development of your food item and how they have been derived from your analysis of existing planning tools.

feedback from stakeholders.

- Further develop your conceptual designs:
  - Continue to undertake research and functional modelling and to gather and use stakeholder feedback to evaluate and refine your conceptual designs.
  - Keep a record of the evidence of stakeholder feedback and your functional modelling and research and how you used these to refine your developing conceptual design.
- Produce a final conceptual design and present it to stakeholders.

#### **2. Justify your conceptual design**

- Justify the potential fitness for purpose of your conceptual design's outcome, as defined by your brief. Include evidence to explain how and why food product will do what it is required to do within the intended location. Consider all aspects of the outcome, including its feasibility and social acceptability.

Submit your final conceptual design, including any necessary explanations, along with all relevant evidence of your development work, to your teacher.

### **Technological Modeling**

#### **Activities:**

- Concept sketches, development sketches. Select design. Client approval.
- Teach practical techniques.
- Development, experimentation and trialling, client testing, final design.
- Trialling and selecting ingredients / techniques: e.g: Teacher

<p><b>2. Set goals, list resources, and determine critical review points</b></p> <p>Use your selected planning tools to:</p> <ul style="list-style-type: none"> <li>• set achievable goals</li> <li>• establish required resources (for example, time, materials, tools and equipment, research information, and community- and school-based specialist knowledge and skills)</li> <li>• determine critical review points (i.e., those that ensure the outcome will be completed).</li> </ul> <p><b>3. Review your progress</b></p> <ul style="list-style-type: none"> <li>• Manage your development and review process to ensure completion of your food item. Regularly, but especially at your identified critical review points, review your progress to: <ul style="list-style-type: none"> <li>– revise and/or confirm your goals and the resources and planning tools you are using</li> <li>- optimise your use of time and materials.</li> </ul> </li> <li>• provide photographic evidence.</li> </ul>	<p>demonstration – then student testing on own materials: Test results and conclusions. Apply conclusions to product development and production.</p> <ul style="list-style-type: none"> <li>• Teach packaging and storage technique. Students’ trial.</li> <li>• Plan own production sequence – discuss with teacher.</li> <li>• Production of product.</li> <li>• Ongoing client and stakeholder consultation throughout whole process.</li> </ul>
<p><b>Key Competencies:</b></p> <ul style="list-style-type: none"> <li>• Thinking about problems and creating and developing solutions. Critical and reflective thinking. Using SCAMPER to develop design ideas and develop recipes</li> <li>• Using language, symbols and text to research, record data, investigate- following recipe instructions, collating data, completing sensory evaluations, using planning tools</li> <li>• Managing self in their organization of self directed projects and relating to others – client and stakeholders. Managing time and resources, meeting deadlines and following instructions</li> </ul>	<p><b>Values:</b></p> <p>Through this unit the students will be encouraged to value:</p> <ul style="list-style-type: none"> <li>• excellence – aiming high and producing quality outcome</li> <li>• diversity- look at a range of products from different cultures</li> <li>• Equity- Respect all, be fair</li> <li>• innovation, enquiry and curiosity- being creative and original</li> <li>• community and participation for the common good- ecological sustainability including care for the environment</li> <li>• integrity – being honest, observing copyrights protocols, behaving ethically and morally</li> </ul>

<ul style="list-style-type: none"> <li>• Participating in class and in the community through consultation and contribution-sharing ideas, participating in trial and testing, experimentation.</li> <li>• Relating to Others- sharing ingredients and equipment, ongoing consultation with teacher, client and stakeholders</li> </ul>	<ul style="list-style-type: none"> <li>• respect for themselves, others and human rights</li> </ul>
<p><b>Assessment Criteria</b>  <b>Technological assessment schedule is based on Components of Practice from the NZC at level 7</b></p> <p><b>Planning for practice</b>  The student has selected and used planning tools to efficiently manage the development of an outcome.</p> <p>The student has selected planning tools informed by an analysis of existing planning tools</p> <p>The student has used the selected planning tools to:</p> <ul style="list-style-type: none"> <li>• set achievable goals</li> <li>• establish resources required</li> <li>• determine critical review points.</li> </ul> <p>The student has managed the development of the outcome.</p> <p>The student has shown evidence of on-going reflection of goals, resources, and planning tools to optimise time and material use to ensure the completion of the outcome</p> <p><b>Outcome Development and Evaluation</b>  <b>Brief Development</b>  The student has undertaken comprehensive brief development to address an issue. The student has:</p>	<p><b>Assessment Strategies</b>  A range of opportunities in Food Technology encourages the following approaches to assessment:</p> <ul style="list-style-type: none"> <li>• brainstorming</li> <li>• investigating</li> <li>• concept mapping</li> <li>• researching, evaluating and modifying</li> <li>• planning and development</li> <li>• using a range of equipment</li> <li>• group and individual work Research-gathering materials; analysis of research</li> <li>• Self and peer assessment</li> <li>• presentation skills- oral; practical; research; ICT</li> <li>• practical-design ideas; investigations; product analysis; development of a solution; skills</li> <li>• evaluations-progressive and final</li> <li>• trialing ideas and evaluating outcomes</li> <li>• peer and self reviewing</li> <li>• producing written, pictorial and verbal reports</li> <li>• recording and keeping a diary or portfolio containing a record of progress</li> <li>• interviewing others</li> </ul> <p>A variety of assessment procedures are included keeping in mind variations in attainment due to ethnicity, background, oral, written and practical ability.</p> <p><b>Assessment strategies will include:</b></p> <ul style="list-style-type: none"> <li>• Research- gathering materials; analysis of research</li> </ul>



- identified an issue as a result of exploring the
- determined a need or opportunity and associated stakeholders, for example:
- prioritised social and physical environmental considerations related to where the outcome will be developed and situated, for example:
- showed on-going reflection of key stakeholders' opinions, for example:
- described the outcome to be developed and justified why that particular outcome should be developed, for example:
- explained the physical and functional attributes required for an outcome and justifying the specifications in relation to these, for example:
- produced a final brief comprised of a conceptual statement and specifications, for example:
  - *The conceptual statement includes wider stakeholder expectation.*

### Conceptual Design

The student has developed a justified conceptual design for an outcome.

The student has established potential conceptual designs by:

- researching design ideas and analysing existing outcomes to generate and evaluate design ideas
- exploring and evaluating design ideas in an ongoing way to determine their suitability for inclusion in conceptual designs.
- The student has evaluated conceptual designs by synthesising evidence from ongoing research and functional modelling, including stakeholder feedback. For example:
  - The student has selected and communicated a final conceptual

- Self and peer assessment
- Presentation skills- oral; practical; research; ICT
- Practical-design ideas; investigations; product analysis; development of a solution; skills
- Evaluations-progressive and final
- Student work will be collected following the research and analysis exercises, **formative** feedback will be given against the criteria.
- Conferencing with each student for feed forward, regarding the student's intended development ideas is given
- Feedback is given on the quality of analysis of research, exercise and presentation of work.
- Students are to be encouraged to submit aspects of their planning and development work as it progresses for ongoing formative assessment
- Progress assessment against the standard assessment
- Final assessment
- Opportunity for resubmission following **summative** feedback.

### Practical Assessment:

Students will apply management strategies in the preparation, production and service of food

design that explains how the outcome would look and function in its intended environment.

- The student has substantiated the outcome's potential fitness for purpose.

### **Technological Knowledge**

*For assessment specification and information visit-*

<http://www.nzqa.govt.nz/nqfdocs/ncea-resource/specifications/2012/level2/91358-spc-2012.pdf>

The student demonstrates comprehensive understanding of how technological modelling supports risk management.

- explaining why different forms of modelling were selected at different stages of technological practice to inform what 'should' and 'could' be done.
- discussing how different forms of modelling can provide valid and reliable evidence from different stakeholder groups.

Students will be assessed against the criteria in the NQF Standards in the table below.

Internal (4 credits)

Standard 2.1 AS91354

Undertake brief development to address an issue

Internal (4 credits)

Standard 2.2 AS91355

Select and use planning tools to manage the development of an outcome

Internal (6 credits)

Standard 2.3 AS91356

Develop a conceptual design for an outcome

External (4 credits) evidence for this standard will be gathered from a written report based on your year's work

Standard 2.5 AS91358

Demonstrate understanding of how technological modelling supports risk management

• **Resources –**

Human and Physical

- The use of ICT
- Student instruction and unit guideline sheet.
- Teachers will maintain the teacher's notes file developed for use with this unit of work.
- Resources for exploration of existing products and investigation to determined key attributes for preserves and promotional food product.
- Access to information sources for required the research e.g. Library, Internet.
- Food technology room and access to appropriate equipment.
- Digital Cameras
- Food resources
- Provision to store all students' experimentation work.
- Students are advised to use a 'working folder' for current work only and to store completed work in a locked cupboard supplied by the teacher.
- Students will be required to supply stationary and materials as necessary.
- "Starter products" samples, pictures, of existing food products that have potential for promotion
- Senior Food Technology and Nutrition Student Book and Teacher Resource CD
- Recipe books/ Magazines
- Pamphlets
- Videos/DVD/ClickView
- YouTube.

**Community Links**

- Home and school
- School environment in the food lab
- Discussion of current market products students may have seen or tried as well as products tested in the food lab
- Students' discussions and sensory testing with chosen stakeholders.

**Subject Links/Cross Curricular Links**

- **Science**
  - Investigate products and processes to record and test observations.
  - Scientific knowledge to work towards a final solution.
  - Chemistry of food.
- **Mathematics and Statistics**
  - Estimating, measuring and calculating quantities, --Time and costs.
- **Health and Physical Education**
  - Health, safety and hygiene
  - Making healthy food choices
  - Producing food that promote wellbeing and are safe for others.
- **The Arts**
  - A range of media in presenting ideas and products.
- **Social Sciences**
  - Understand the cultural factors, values and social structures that influence food choices
  - Current trends in availability of food and equipment.
- **English**
  - oral, written and visual language when listening to, communicating and presenting information.
- **Language**
  - discover how language and culture influence our personal, group, and national identities through food.

### **Safety Issues**

Students will be reminded of safe working practices within the food laboratory and when working at home.

- Health and Safety Code of Practice followed.
- HACCP in food lab is essential.
- Students made aware of their responsibility for their own safety and that of others.
- -No students participate in practical tasks without the appropriate footwear
- -clean apron
- -Hair tied back or covered
- -Clean nails and no watches, jewellery or loose clothing
- -cover up cuts or grazes with waterproof dressings
- Appropriate food preparation and storage
- Appropriate cooking methods and times followed
- Equipment monitored for chips or cracks and discarded
- Food testing for stakeholders is safe and ethical
- Sanitizing of work benches
- Dishwashers used for cleaning utensils, cutlery and crockery
- Laundry washed thoroughly immediately after use.